Compliments of

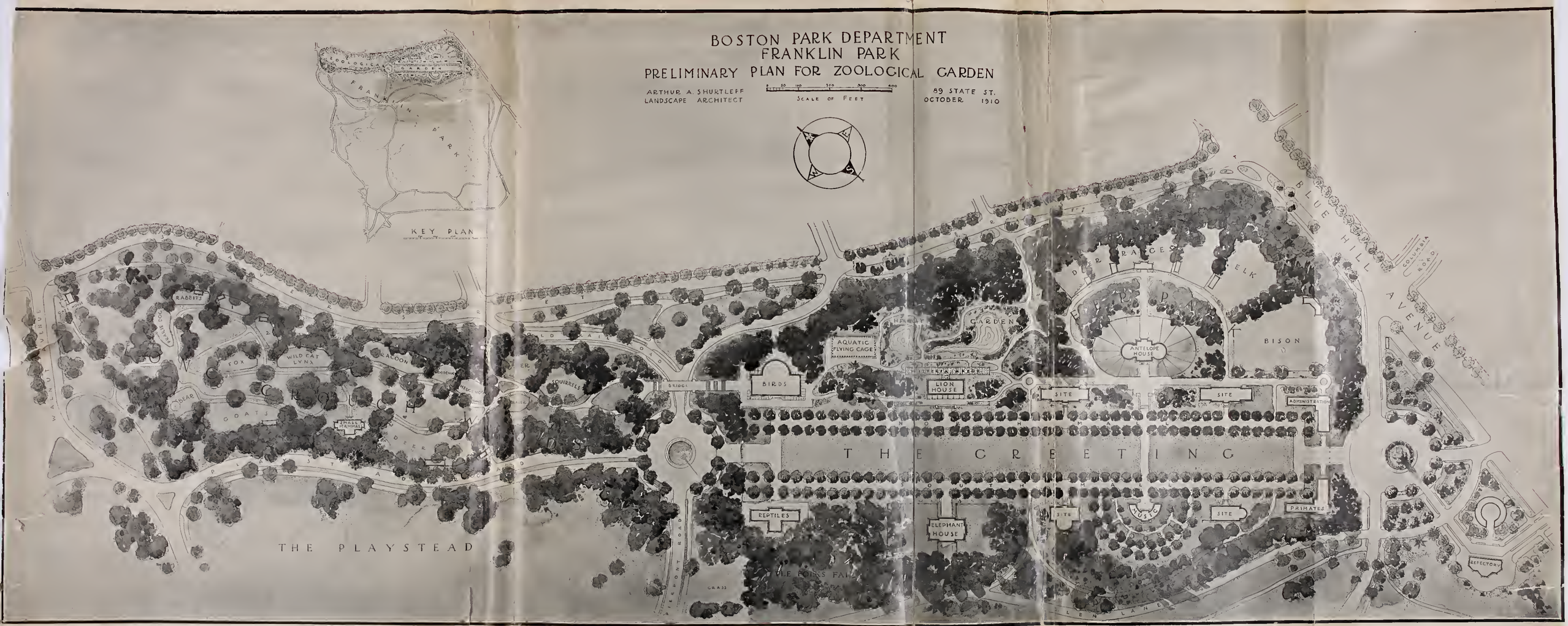
Park Commissioners.

BOSTON PARK DEPARTMENT
FRANKLIN PARK
PRELIMINARY PLAN FOR ZOOLOGICAL GARDEN

ARTHUR A. SHURTLEFF
LANDSCAPE ARCHITECT

0 50 100 200 300 400
SCALE OF FEET

89 STATE ST.
OCTOBER 1910



CITY OF BOSTON

PRELIMINARY REPORT

OF THE

BOARD OF COMMISSIONERS

OF THE

DEPARTMENT OF PARKS

OF THE

WITH PLANS AND ESTIMATES FOR A

ZOOLOGICAL GARDEN AT FRANKLIN PARK

AND AN

AQUARIUM AT MARINE PARK

CITY OF BOSTON
PRINTING DEPARTMENT
1910

City of Boston,
Park Department, October 5, 1910.

Hon. John F. Fitzgerald, *Mayor,*
City Hall, Boston:

Dear Sir,—The following order of the City Council approved by you has been transmitted to the Boston Park Commission:

City of Boston,
In City Council, May 2, 1910.

Ordered, That the sum of five thousand dollars ($5,000) be appropriated from the income of the Parkman Fund, to be expended by the Park Commissioners, with the approval of his Honor the Mayor, for the purpose of obtaining plans and estimates for a zoological garden in Franklin Park and for incidental expenses connected therewith.

Passed, yeas 7, nays 0.

Approved by the Mayor May 4, 1910.

A true copy.

Attest: (Signed) W. J. Doyle,
Assistant City Clerk.

Also we have received an order of similar tenor appropriating a similar sum to obtain plans and estimates for an aquarium at Marine Park.

In accordance with these orders the Boston Park Commission presents to you herewith a preliminary report, and with it letters from Arthur A. Shurtleff, landscape architect, and William D. Austin, architect, describing in detail respectively projects for the Zoological Garden and for the Aquarium; also letter of advice from William T. Hornaday, director of the New York Zoological Garden.

Our studies for the Zoological Garden led us at first to certain conclusions which we will describe though they were later modified. We perhaps primarily looked at the subject as somewhat experimental, and, again, as the area available for the purpose was rather limited between the "Greeting" and Seaver street, and as we surely did not wish to infringe

on the broad expanses of the park, we were inclined to start with a limited program. We therefore planned for hardy animals only and sueh as eould live out of doors all winter and without heated houses, except that a heated house was to be provided for migrating birds. As such a limited program eould not embrace wide ranges of natural history we were inelined to present one branch in a seientifie and thorough manner (perhaps the birds as they would require less area), and have the other exhibits less scientifically thorough and more in the nature of popular attractions. We also have been of the opinion that, if for no other reason, the fact that the garden formed part of Franklin Park rendered it desirable that the arrangement should be picturesque and attractive rather than simply have the look of a labeled eolleetion. Mr. Shurtleff and Mr. Pettigrew tried therefore to arrange every yard or den with a baekground so that the animal would show as in a pieture. In short, the system employed in the Paris Jardin d'Aeelimatation is used rather than that in the Jardin des Plantes.

At this point we sought the adviee of Mr. Hornaday, the distinguished direetor of the Bronx Zoologieal Gardens. His views are given in detail in his letter attached hereto. Though he approved of our seheme as far as it had gone, he convinced us that none would be really satisfactory that did not provide for future growth through gifts or publie interest, which he deemed inevitable. Besides, he told us that a complete inelosure of the Zoological Garden was indispensable, and all this meant that to get increased aereage the grounds should extend beyond the Greeting, and that henee the Greeting as well as the zoologieal exhibits would be within the inelosure.

We have always valued the Greeting as an integral part of Mr. Olmsted's design for Franklin Park, in fact, as the culmination of the whole scheme of the city parks. We were puzzled as to its treatment if the Zoological Garden extended beyond it and inclosed it as Mr. Hornaday desired. We finally determined that by slightly ehanging its nature the Greeting might be made the backbone of the design of the Zoologieal Garden; that if it were made a promenade for pedestrians instead of for earriages it might without detriment be within the inclosure of the "Zoo"; and that this promenade with the Musie Court and the Zoological Garden and the Herbaeeous Garden that is already well established all opening upon it, the whole would combine to make a more

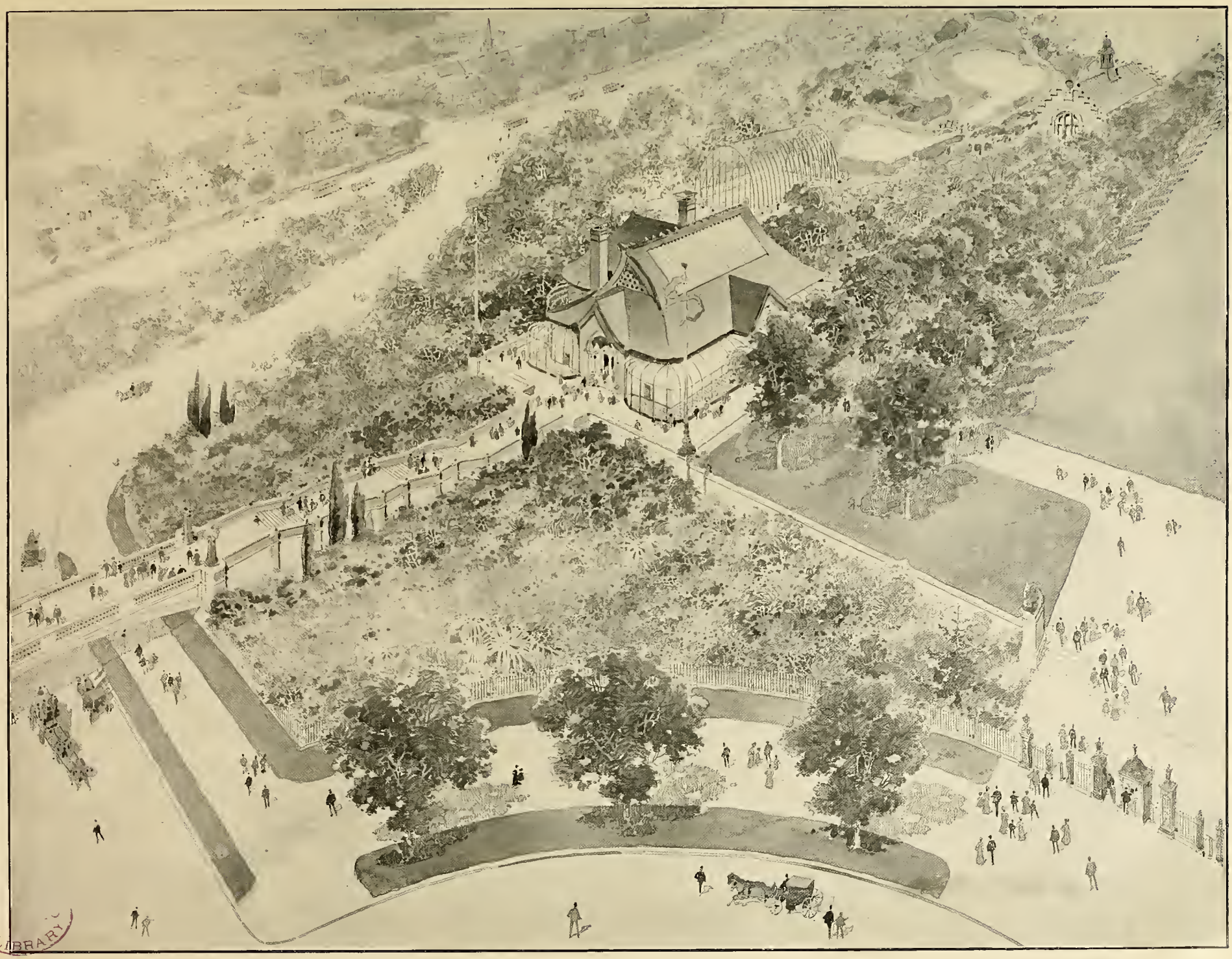


FIG. 2.—GENERAL VIEW OF HOUSE FOR BIRDS

important and alluring culmination of the park system than has hitherto been thought of. Moreover, in all essential features Mr. Olmsted's original design is adhered to.

The plans now presented embody this seheme. It is not neeessary to earry the work at present any farther than any present funds we may be intrusted with will permit. Gradual extension will be possible on the well established lines as often as gifts or interest in the subjeet may render it possible or advisable. At present we should advise no permanent large building exeept the house for migrating birds and the bridge that will permit the inelosing of Long Croueh Woods with the Sargent Field without stopping the avenues that open upon Seaver street. Both of these have been designed by Mr. Austin and their eost is ineluded in Mr. Shurtleff's estimate for the preliminary zoologieal garden. No other large buildings are ineluded in the estimate, but sites for permanent heated houses are provided to be built as the future gives opportunity.

Mr. Shurtleff's and Mr. Pettigrew's estimate for the work thus deseribed, whieh would result in a satisfaetory and interesting zoo for the present, is $341,700, and the mall or Greeting would eost inside of $200,000. As regards the latter we should at first expeet to do sueh work as would permit the planting of the trees and the rest might follow slowly, and it would be two or three years before the whole of this sum were expended. Any permanent heated building other than that for the birds would be a subjeet for future discussion.

In the study for the aquarium building Mr. Austin, our arehiteet, has visited those at Detroit and New York, where are the best Ameriean examples, and has had the benefit of the kindly adviee of the direetors of those institutions, and sueh other authorities on these matters as we eould reaeh have also been eonsulted.

The drawings explain themselves and show a building large enough, we think, for present purposes and eapable of indefinite expansion. It will make a very attractive addition to Marine Park. The two large ponds in its immediate vieinity ean be used for summer exhibition of various sea animals under the care of the aquarium staff. Mr. Austin's estimate leads us to think that we should expeet the building to eost $100,000.

On May 13, 1910, at your request we conferred with the Publie Grounds and the Music Departments as to the possible disposition of the Parkman Fund ineome, and, in accordanee with the opinions agreed to at that meeting,

asked you to place half of the income of the fund at the disposal of the Park Commission for them to expend upon the Zoological Garden, the Aquarium, the Music Court and Greeting, and certain loam in Franklin Park, and that it be left to our discretion as to the distribution of the sum between these objects, as one may advance more rapidly than another. We now again renew this request on the understanding that the money shall be spent on advancing the work described in this report. We would, however, point out that the more money we can be spared from the funds on hand the farther we can go with the work we have outlined in this report.

Yours truly,

Robert S. Peabody.
James M. Prendergast.
Daniel H. Coakley.

Arthur A. Shurtleff, *Landscape Architect*,
89 State Street, Boston, Mass.,
September 29, 1910.

Boston Park Department, Board of Park Commissioners,
Robert S. Peabody, *Chairman*,
Boston, Massachusetts:

Dear Sir,— In the plans for Franklin Park prepared by F. L. Olmsted in 1886 a parcel of about 80 acres of land was set apart near the borders of Seaver street to accommodate a zoological collection, a Deer Park, a Music Court, a Little Folks' Fair, and a concourse or alamada, called "The Greeting." Although these features were regarded as important adjuncts to the great "Country Park" which occupied the larger portion of the remaining 450 acres of Franklin Park, their construction was postponed for lack of funds and for want of an active public demand. In the lapse of thirty years the "Country Park" has been brought to a high degree of completion, but these popular adjuncts have remained almost wholly undeveloped. In other parts of the Boston park system, however, a variety of popular recreative attractions of a similar kind have been created in late years, which tend to reduce the number of persons seeking the quiet scenery of Franklin Park. Time has proven in Boston

FIG. 3.—BEAR DEN, ZOOLOGICAL GARDEN

and in other cities that extensive pastoral and wooded parks, which make their appeal through the enjoyment of great landscapes, require secondary amusements of just that kind offered by a zoological garden to enable them to hold their places in competition with seashore reservations, bathing beaches and the modern highly-developed playground. The disappointing attendance at Franklin Park shows clearly that the moment has arrived when the development of the secondary attractions of this plan must be accomplished if Franklin Park is to hold its recreative pre-eminence in the park system.

The original plan for Franklin Park and the notes that accompanied it explain at length the need of maintaining heavy plantings of woodland and under-cover to screen the quiet landscapes of the "Country Park" from the unrelated views of the proposed "Greeting" and zoological collection. The contour of the ground, fortunately, assists this barrier of trees (now well developed) by interposing also a number of hills, ridges and valleys. Fortunately these inequalities of contour contribute at the same time to the needs of the several features contemplated by the plans—the rocky ridge of the Long Crouch Woods and its extension furnish almost ideal conditions of soil, exposure and drainage for the zoological collection and for deer ranges; the hollow basin of Sargent's Field, with slight excavation, can be made to accommodate the ponds of an herbaceous garden and of an aquatic flying cage for birds; the long contours of the flat-bottomed valley between Deer Hill and the ridge proposed for the Music Court can be readily molded to the formal outlines of the proposed "Greeting."

Following your request I have made a careful study of the original plans and notes for Franklin Park and I have examined the grounds in the vicinity of the site of the proposed Zoo in detail with topographical maps. I have conferred at length with your chairman, with the superintendent and with the engineer of the Park Department, together with Mr. William T. Hornaday of the New York Zoological Park. I beg to submit the accompanying preliminary plan and estimates as an outcome of these studies and conferences.

The plan includes six main features: Long Crouch Woods, the Herbaceous Garden, Deer Hill, the Greeting, the Music Court and the Little Folks' Fair. These parts are all intimately connected with one another by ample paths, well shaded by existing woodlands, and they are unified by the great central mall or Greeting which would form the main avenue of approach from

the car lines of Blue Hill avenue and Seaver street and from the main driveways of the park itself. No better location for a zoological garden with regard to existing lines of approach, both within and without the park, could be found or desired.

Long Crouch Woods.

The rocky character and the southern aspect of this wooded ridge suits admirably for a collection of native animals requiring little shelter in the winter season. Among these animals might be included bear, lynx, raccoon, fox, badger, hedgehog, squirrels, otter and beaver. Figs. No. 3 and No. 4 illustrate the appearance of the inclosures proposed for this vicinity. Each inclosure is to be viewed only from the front by the public, the sides and rear being planted to form a background suitable to display the animals to the best advantage with the most characteristic environment and with the least possible exposure of cage-work. The floor of each inclosure is to be carefully built of concrete with a naturalistic surface insuring cleanliness, with the least appearance of artificiality and with the minimum cost of upkeep.

This district would be approached by two or more gate entrances having turnstiles to record the number of persons entering and to form the headquarters for local policing. As indicated upon the plan one building will be required to shelter small mammals other than those which are inured to the severity of our winter. This building would not be needed until the Zoological Garden as a whole had attained a high state of development.

A bridge would be required to carry the crowds of people from the Long Crouch Woods section across the line of Old Trail Road to the vicinity of the Herbaceous Garden.

Herbaceous Garden.

This garden already started successfully (see cut No. 7) would be devoted partly to a collection of interesting and attractive herbaceous plants, flowering shrubbery and trees, and partly to a collection of aquatic birds. Certain of these birds would roam at will in the ponds and pools of the garden, but a large proportion of them would be kept in an ample flying cage (see cut No. 5) provided with independent pools and trees of its own.

A bird house should also be provided, to which all the less hardy birds

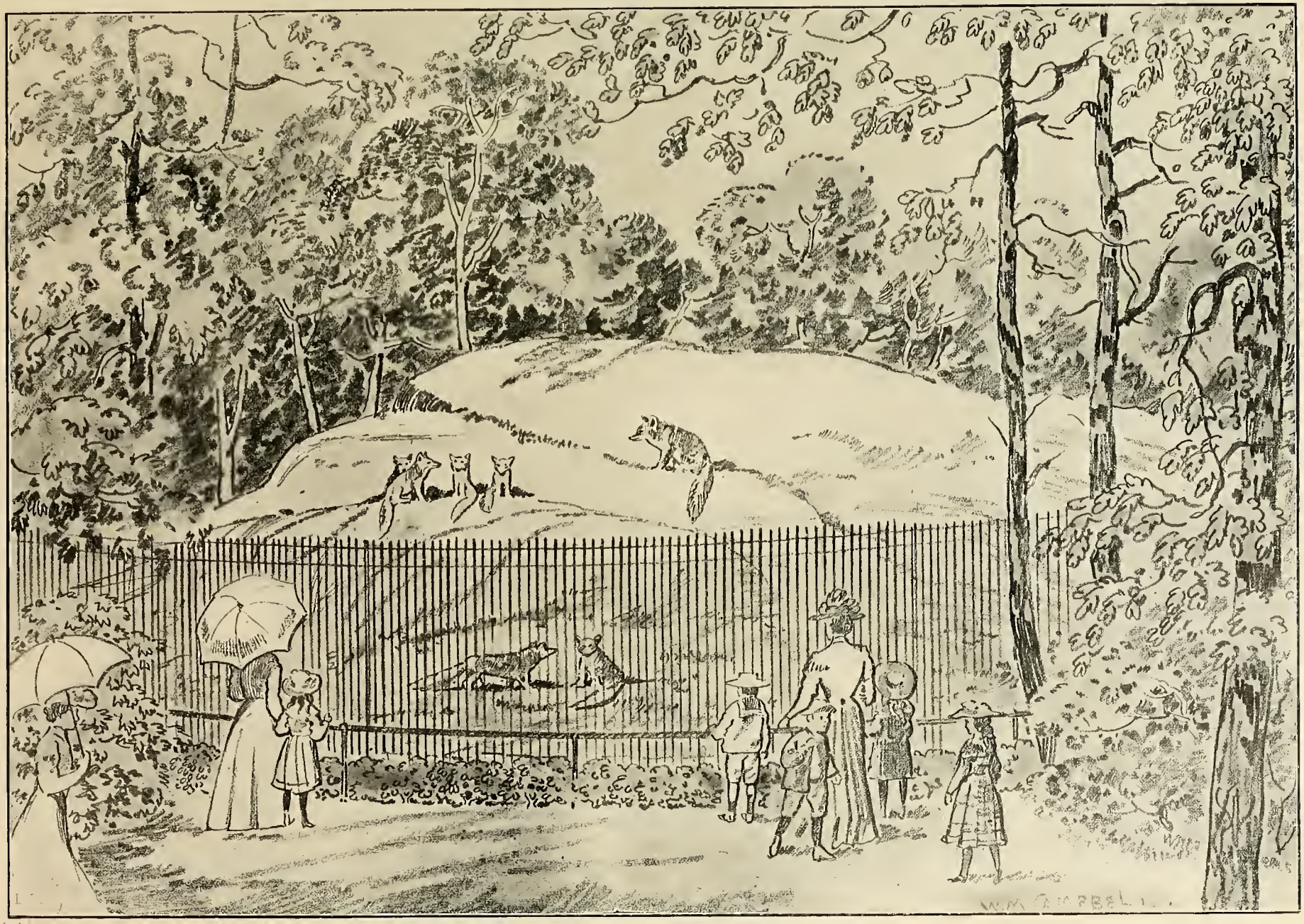


FIG. 4.—VIEW OF FOX DEN, ZOOLOGICAL GARDEN

could be withdrawn in the winter season. As the Zoological Garden gained in importance this building would be used to accommodate rarer species, which would need its protection in summer as well as winter. The plans and perspectives of this building (illustrated in Fig. 2) indicate the building in its fully developed condition, and show its relationship to the bridge and to the flying cage, as well as to the margins of the Greeting. Adjoining the Herbaceous Garden, upon a favorable ridge of land, a wistaria arbor would be arranged to form an agreeable point from which to view the garden. This arbor would be of considerable size and would separate the Herbaceous Garden from the lion house upon its southern side. While the arbor might be built early in the history of the garden, it is to be expected that the lion house would form an ultimate development which could be added without disturbing either the Herbaceous Garden or any of its adjuncts.

Deer Park.

The Deer Park occupies the eminence immediately east of the Herbaceous Garden. The highest point of ground would be occupied by an antelope and deer house, having radiating inclosures upon all sides, allowing their occupants to enjoy the sunlight and air in fine weather and to enter the building in inclement seasons. Inclosing the antelope house and its runs a semicircular path would give approach to a series of unattached inclosures intended for deer, elk and bison, as shown clearly upon the plan. These inclosures would be comparatively large in size and of favorable depth, according to the requirements of the animal to be corralled. All these inclosures would be separated carefully from one another to afford proper backgrounds for the animals and to screen the cages and the animals themselves from the park boundaries. (See Fig. 6).

The Greeting.

The original plan prepared by Mr. Olmsted for the Greeting, and shown upon the early plans for Franklin Park, contemplate a series of parallel drives, rides and walks, having a total width of 300 feet and extending from the vicinity of the Blue Hill avenue entrance to the Playstead, a distance of approximately half a mile. It was intended to form a great concourse, allowing persons approaching the park on foot, by carriage and on horseback, to meet one another and to

enjoy promenading before entering the park itself. During the years which have elapsed since the design of the park was made many radical changes have taken place in methods of transportation, and the necessity of such a concourse for the use of carriages and riders is less than it was, but long avenues of trees and a long stretch of greensward can never go out of fashion or be other than beautiful. The Zoo to be orderly and attractive needs a main avenue, and if the Greeting were somewhat transformed in character to make it a great sylvan avenue intended wholly for persons on foot it would make a most impressive and most useful concourse for the Zoo. The Zoo thus made orderly and imposing will form a noble culmination for the many winding roads of the park, and Mr. Olmsted's design will be retained but adapted to the most modern conditions. This modification of the design would also reduce the cost of construction of the Greeting by the elimination of large surfaces of macadam, which would be replaced by extensive areas of greensward. Instead of the $275,000, which is the estimate for the original Greeting, it would cost in the proposed modified form about $200,000, or less. In its transformed condition the Greeting would provide a natural line of communication for foot passers between Columbia road and the Playstead district, and would make a magnificent frontage for zoological structures on either side. The plan contemplates buildings near the Columbia road entrance for administration purposes and for housing primates, elephants, reptiles, etc., as shown clearly on the plan. These buildings should not be of so monumental a character as to allow them to become conspicuous throughout the park. They should be comparatively low in height, nestling among the trees, and only visible from the Greeting or its nearby approaches. The circles terminating the Greeting would be ornamented with fountains or other features to make them acceptable foci for such important vista points and points of congregation.

Music Court.

The Music Court shown on the original plans for Franklin Park is carefully retained, but is reduced somewhat in size and moved slightly toward the east, by which it is made to occupy a position immediately opposite the antelope house and its flanking buildings. The sloping surface upon which the Music Court would be built would contribute much to its good appearance.

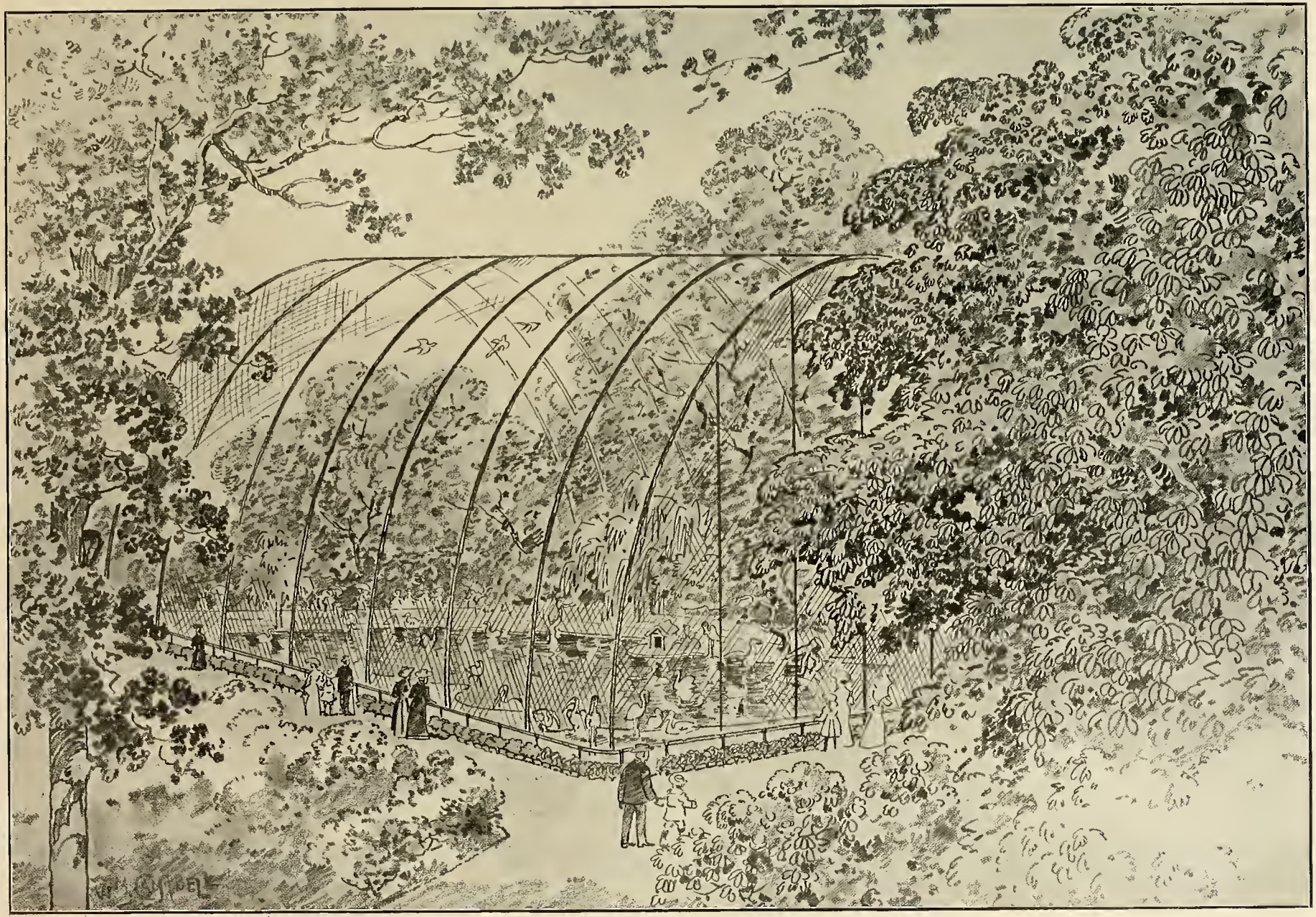


FIG. 5.—FLYING CAGE FOR AQUATIC BIRDS.

Little Folks' Fair.

The Little Folks' Fair is to be devoted to childish entertainments, including swings, seesaws, marionettes, goat carriages, donkey courses and amusements to which it was to be originally devoted under the Olmsted plan. Its proximity to the Zoological Garden would also render it available for persons wishing to ride elephants and camels, as is customary in most zoological gardens.

The Refectory.

The nearness of the Refectory to the Zoological Garden is especially fortunate. This building is already designed to accommodate a restaurant, and has closely associated with it a shed for the accommodation of vehicles. Up to the present time the Refectory has not secured patronage enough to make it a success, but with the presence of the Zoological Garden so near at hand its success would undoubtedly be assured.

Boundary Fences.

All portions of the Zoological Garden should be inclosed with a fence to form a barrier against dogs likely to frighten or injure the animals. By the absolute exclusion of dogs in this manner it becomes possible to effect a considerable saving in the cost of fences around the individual inclosures. Many inclosures for wading birds, for instance, can be made only two or three feet in height, provided there is no danger of dogs jumping into them. The border fences are also essential to prevent crosscutting through the Zoo grounds and to make it possible to concentrate all entrances and exits at the regularly appointed turnstiles. It is becoming the universal practice to inclose all zoological gardens in order to effect these very desirable controls and if necessary collect tolls on certain days of the week.

Development of the Plan.

The plans show a complete zoological garden of large size. It is not expected that all this would be built now. Much of it might never be built,—but provision is made for its possibility. It would seem best to begin work in the vicinity of Long Crouch Woods, the Herbaceous Garden and the Deer

Park. These portions would form a self-contained unit independent of the execution of the entire scheme for their success. In addition to this work as much could be done towards the Greeting and Music Court as funds would permit.

Estimates.

Estimates have been made of the cost of the first portion of the Zoological Garden project, including Long Crouch Woods, the Herbaceous Garden and Flying Cages, the Bird House, Arbor and the Deer Park. These figures, amounting to $341,700, are approximate, and furnish a basis upon which the general cost of the work may be fairly judged. The cost of the Greeting should be reckoned as $200,000.

Respectfully submitted,

Arthur A. Shurtleff.

Approximate Estimate of Cost of the Proposed Zoological Garden, Including the Tract from Sigourney Street to and Including the Herbaceous Garden, the Deer Park and the Bird House.

Fences for Animal Inclosures.

1,000 lineal feet of first-class den cage for bear, lynx and beaver, etc., averaging 6 feet in height, equals 6,000 square feet, at $1.50 per square foot erected	$9,000
3,000 lineal feet of second-class cages for raccoon, birds, foxes, etc., averaging 8 feet in height, equals 24,000 square feet, at $1 per square foot erected	24,000
3,500 lineal feet third-class cages (inclosures) for deer, goats, etc., averaging 8 feet in height, equals 28,000 square feet, at 50 cents per square foot erected	14,000
3,000 lineal feet of guard rail, 3 feet in height (to separate the public from contact with the cages), at $2 per lineal foot	6,000
Carried forward	$53,000

FIG. 6.—DEER PARK.

Brought forward	$53,000

Boundary Fence.

10,000 lineal feet, 7 feet high, equals 70,000 square feet (approximately), at $1 per foot erected	70,000

Gate Houses, Containing Turnstiles and Room for Attendant and Heater.

Six (6) at $3,000 each	18,000

Shelters for Animals, of Wood or Stone or in the Form of Caves, Excavated or Built up in Rock.

Twenty-five (25) at an average of $300 apiece	7,500

Granolithic Paths.

27,000 square feet at $0.20	5,400

Granolithic Surface for the Floors of Cages and Inclosures.

Approximately 70,000 square feet, at 40 cents per square foot	28,000

(The above floors are lifted from the ground on concrete piers to allow circulation of air beneath for the preservation of the trees now growing on the site of the Zoo.)

Loam.

Beds for the planting of shrubbery and trees to form a background at the ends and sides of cages, involving some rock excavation:

Excavation, including ledge, say	7,000
Loam at 60 cents per cubic yard, say	5,000

Shrubbery and Trees.

For backgrounds and screens, partly collected in the park system and partly purchased	3,000
Carried forward	$196,900

Brought forward	$196,900
Herbaceous Garden.	
Arbor for Herbaceous Garden	5,000
Garden	12,000
Lighting.	
For the entire Zoo for service use only	3,600
Sewer.	
Main sewer to Sigourney street	5,000
Secondary drains and sewers from the cages and from surface water, catch-basins	5,000
Water.	
Water pipe at $1.50 per foot, laid	2,200
Flying cage	12,000
Bird house and terraces	100,000
Total	$341,700

2969 Decatur Avenue, Bedford Park,
New York City, September 20, 1910.

The Board of Commissioners of the Department of Parks, City of Boston:

Gentlemen,— In response to your invitation I have carefully inspected your Franklin Park and conferred with the members of your honorable Board, your superintendent of parks, your architect of buildings and your landscape architect. Concerning your plans for a zoological park I have the honor to submit the following report:

The Boston Zoological Park.

Plan and Scope.— With the assistance of the various officers interested, I have carefully examined the plan that has been suggested for a collection

FIG. 7.—LOOKING NORTHEAST FROM THE ARBOR IN THE HERBACEOUS GARDEN.

of hardy animals, not requiring heated buildings, and for a eollection of birds requiring only one heated building, to be located on a narrow strip of partly forested land, situated along the extreme northern side of Franklin Park. The total area of the proposed site is about forty aeres.

I found that while the picturesque roeks, knolls and open spaees of this area will very well aeeommodate the hardy hoofed animals, the bears, wolves and foxes, wild goats and sheep, and the bird colleetions, there is room upon it for hardly more than two buildings for tropieal animals; and this condition immediately brings us faee to face with the all-important question — what will be the final development, say twenty-five years hence, of the zoological establishment you now propose to ereate? So far as your prospeetive enterprise is eoneerned it is impossible to overestimate the importance of a eorreet answer to this question.

Thanks to the progress of general edueation and enlightenment, the time has quite gone by wherein it was neeessary to present arguments to prove the edueational desirability of such institutions as that which you now have in mind. To-day it is no more neeessary to justify the existenee of good, modern zoologieal parks than it is to defend the Atlantic Oeean or the Rocky Mountains. The few persons who oppose zoologieal parks that are established on the lines of modern humanity merely advertise the fact that they are at least half a century behind the times.

No people in Ameriea are more highly imbued with eivic pride than the people of the City of Boston. Your existing parks and eity institutions abundantly demonstrate the truthfulness of that assertion. If your city, the fifth in population and importanee of all the eities on the American continent, ereates a vivarium of any kind, will your people be satisfied with anything less than a modern, up-to-date zoologieal park that will adequately represent the City of Boston and adequately meet the wants of its people? Can your wealthy and progressive city afford to ereate a zoologieal garden or park far below the seale of her Museum of Arts, her Publie Library or her Arboretum, and so small and ineomplete that it would befit a city only one-fifth the size and importanee of Boston?

The answers to these questions must eome from you; but at the same time I regard them as obvious. It is my opinion that you will wish to create a zoologieal park in every way befitting the position, the wealth

and intelligence of the City of Boston, and that nothing less will satisfy you or the great mass of people which your honorable Board represents.

It is my firm conviction that your original plan will not be adequate to meet the purpose you have in view, and that its scope needs to be greatly expanded. It does not provide for the exhibition of any tropical mammals or reptiles, and it does not provide for the future extensions that I firmly believe will, in any event, be forced upon you by circumstances.

It is neither necessary nor desirable that any city should create and maintain a zoological garden or park on a scale of size and cost far beyond its resources. The policy of wisdom is for each city to plan an establishment as large and as perfect as its own rank and resources will justify, without making it a noticeable burden upon the taxpayers. In the confident belief that it will ultimately be your decision to adopt this course, I recommend the development and final adoption of a plan that, when fully wrought out in the future, say ten years hence, will be as complete, as perfect and as dignified as any city of the size of Boston would be justified in creating and maintaining for her people.

Situation in Franklin Park.— I approached Franklin Park fully resolved in mind that my natural tendencies as a zoologist should not be permitted to outweigh my duty as a citizen toward a great and beautiful public park. In other words, I would be unwilling to mar a fine example of park development, even for the sake of securing a good site for a zoological garden or park.

It was, therefore, with great satisfaction that I found conditions which will render it not only possible but comparatively easy to develop in Franklin Park a very beautiful zoological establishment without marring the unity and perfection of the park as a whole. By a remarkable combination of the work of nature and Mr. Olmsted there exists in the extreme northern end of Franklin Park an area of about 80 acres which is so set off from the main areas of that great park (about 525 acres) that its use as a zoological park seems to be quite justified. Between this and the main area there rises a wooded ridge which forms a sort of natural boundary, and which will completely mask and hide any buildings for animals that may be erected in the open valley lying to the north of it, projected as "The Mall." A sunken road, for service only, which

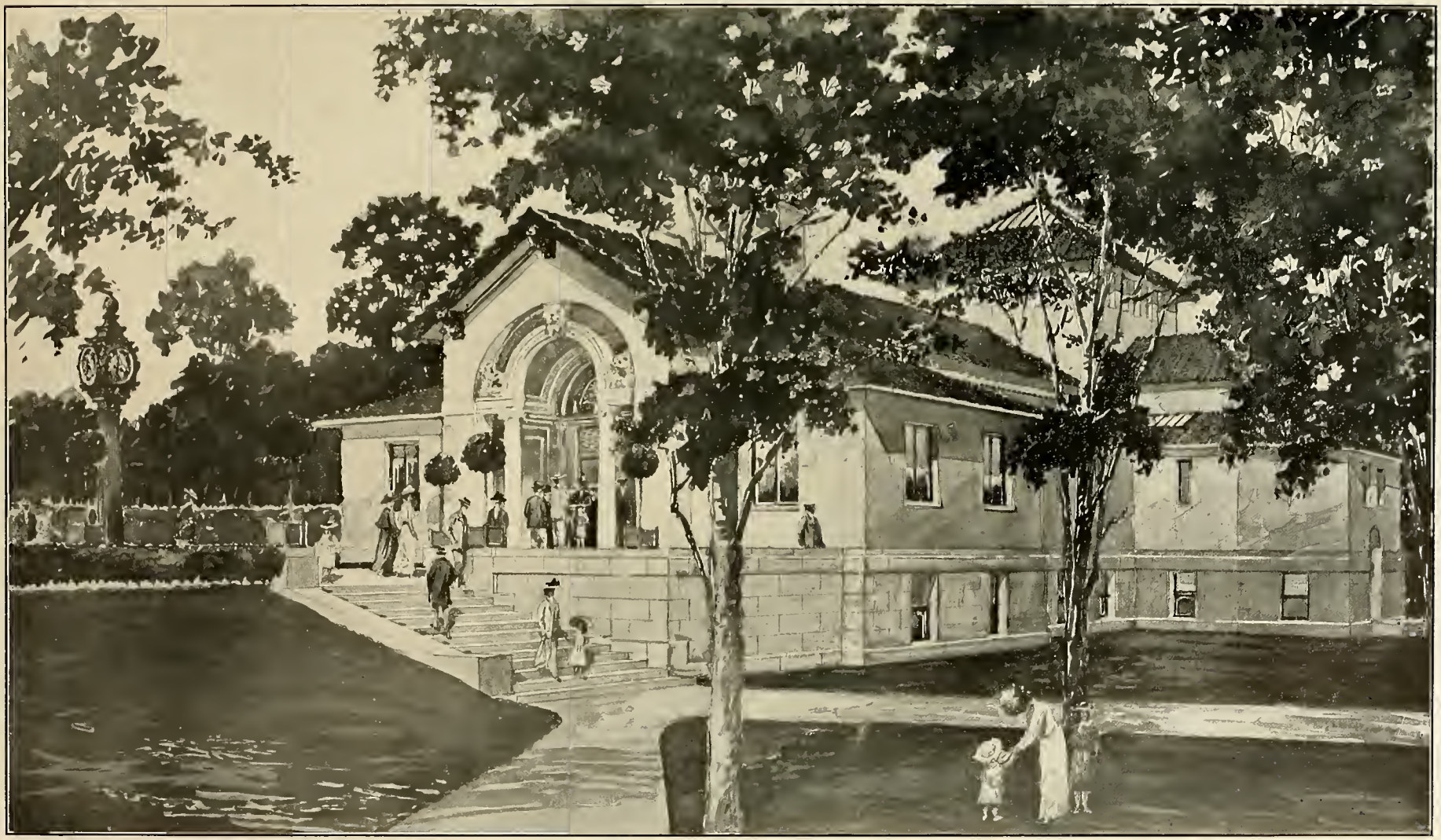


FIG. 8.—PERSPECTIVE VIEW OF PROPOSED AQUARIUM AT MARINE PARK, SOUTH BOSTON.

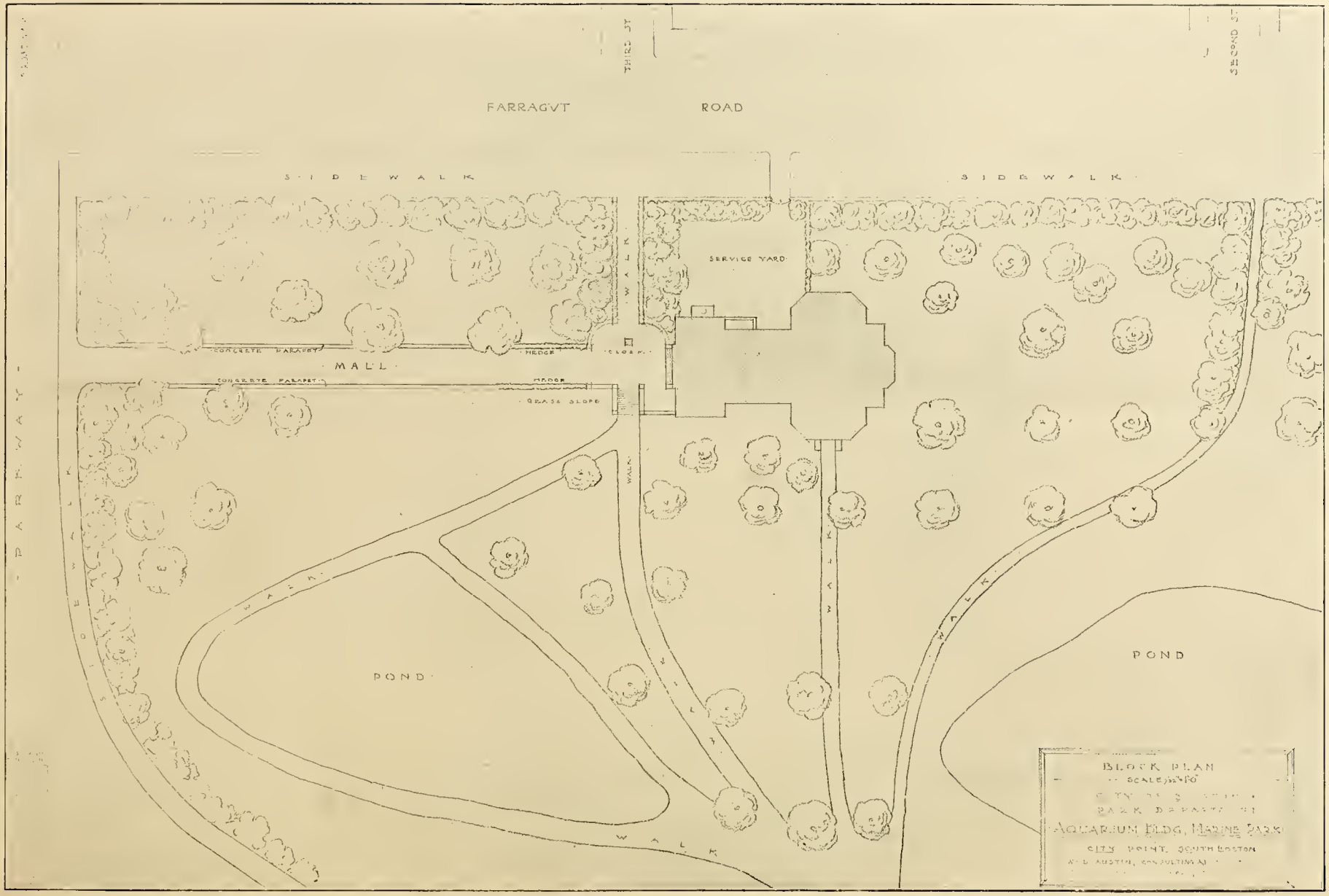


FIG. 9.—PLAN OF AQUARIUM AND ITS ENVIRONMENT.

extends along the southern faee of this ridge, would form an excellent southern boundary for the proposed zoologieal park.

I believe that it is possible to utilize about 80 aeres as a site for the zoological park, and have the buildings and other improvements ereeted thereon so completely hidden from the remainder of Franklin Park that the park as a whole would not suffer any real injury or loss. The area referred to seems to be very little used, and the mall proposed by Mr. Olmsted is as yet wholly undeveloped.

Effect on Outside Interests.— The maintenance of a zoological park in the northern end of Franklin Park eould easily be so managed that it eould not by any possibility be objeetionable to the residents of the distriet outside. The only wild animals whose eries eould be plainly heard outside are wolves and sea lions. Of these the number exhibited eould be kept at a point so small that they would eonstitute a negligible faetor.

Thus far not one eomplaint of the noises of the animals in the New York Zoologieal Park has ever reaehed the direetor; and, on the other hand, property around that park has been doubled in value by its development. Many new dwellings and apartments have been ereeted to overlook our boundary fences. In Europe it is the regular thing for zoologieal gardens to be developed as near as possible to the eenters of population of the eities they adorn; and I never have heard that sueh institutions are disliked by the people who live around them. In Antwerp the Zoologieal Garden is situated in the heart of the eity, close beside the grand eentral railway station.

Accessibility.— The general aeeessibility of the north end of Franklin Park is a powerful argument in favor of the development of a zoologieal park at that point. A modern establishment will be so pleasing and attractive that it will attraet throngs of people to that region, and undoubtedly would vastly inerease the use and enjoyment of Franklin Park as a whole. The New York Zoological Park is now so attractive that many persons visit it onee a week, or even more often, during the season of green foliage and mild weather. The total attendance in 1909, by turnstile reeords, was 1,614,953; and our annual inerease in attendanee is about 200,000. In summer uncounted thousands of visitors first view the animals and afterward go out into the other portions of Bronx Park to enjoy the park as a whole. Previous to the devel-

opment of our vivarium and the Botanical Gardens, Bronx Park was visited each year by about 30,000 persons.

Recommendations.— In conclusion, I have the honor to submit the following recommendations:

I think that the scope of your plan should be enlarged until it will provide, finally, a zoological park designed on the most modern lines, adequate in size to meet the needs of Boston, and sufficiently perfect and beautiful to be a permanent source of pride and pleasure to all your people, and especially to the men who are responsible for its development. In order to meet the conditions that time and the public will inexorably demand of you, and to provide adequately for the enormous increase in the population of Boston and its environs that is absolutely certain to be witnessed during the next twenty years, I strongly advise a great expansion of your plan. It is unnecessary for me to point out to you the desirability of preparing now a complete and perfect final plan of the ideal zoological park that you will wish to gradually develop during the next ten years.

I recommend that, in addition to the area you have in mind, the whole of the proposed mall or Greeting, as planned by Mr. Olmsted, and the entire wooded ridge south of it, down to the northern wall of the sunken road, be included in the proposed site for your zoological establishment. I also advise that the southern boundary line be carried across the northeasterly corner of the small meadow, and screened by planting, and that the western entrance be located on the street front, instead of some distance within the park grounds, at the top of the first slope. I think that all the ground in the northwestern corner is desirable as a part of the site, even though it never be occupied by animals.

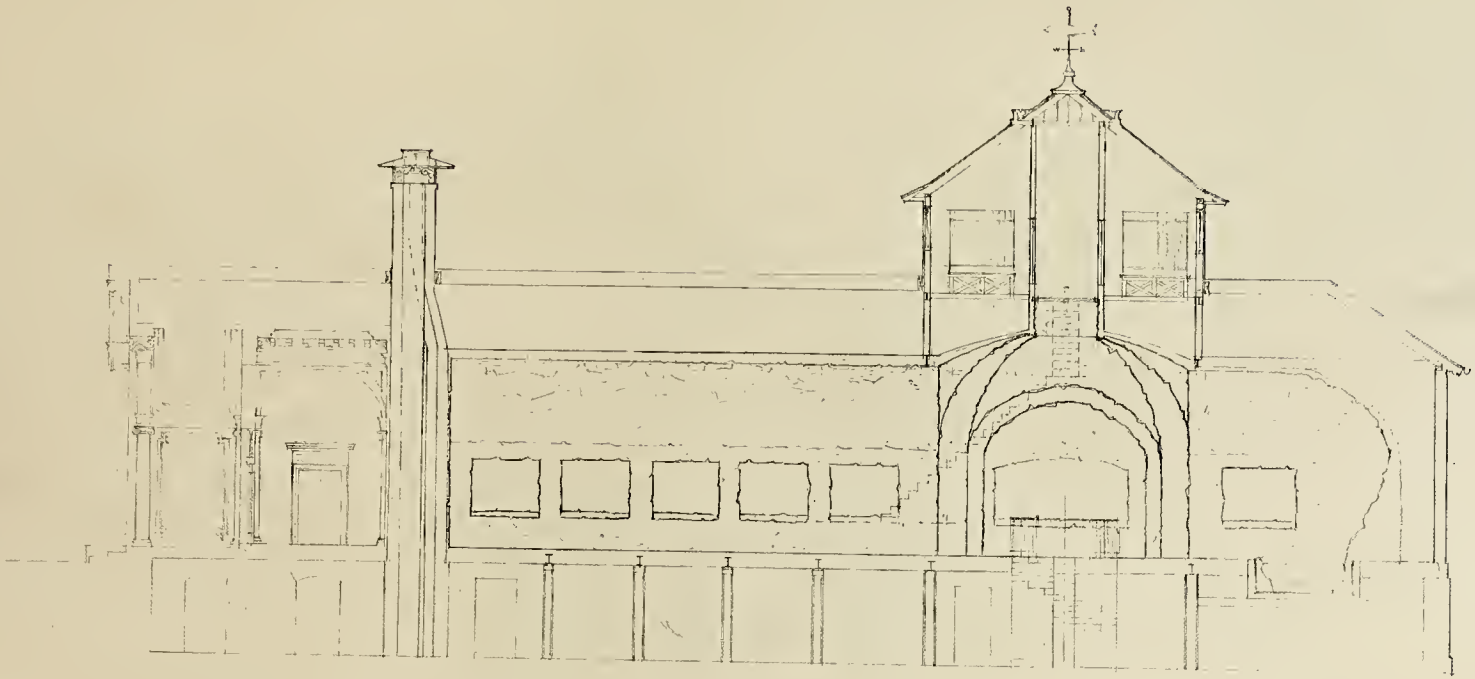
The location of the bear dens, wolf and fox dens, squirrels, and other inclosures for rodents as proposed in your preliminary plan, is heartily approved. I would add to that region, where there are numerous outcropping masses of conglomerate rock, suitable installations on rocks for the wild goats and wild sheep.

The proposed locations for the large flying cages and ponds for water fowl are approved, as being well chosen and very suitable. The proposed ranges for hardy deer, elk, bison, etc., on the northern half of the broad knoll in the northeastern corner of the site, is also fully indorsed, in the belief that the choice is a good one.

PROPOSED AQVARIVM AT
MARINE PARK SOVTH BOSTON

AVGVST 22. 1910

WM. G. AVSTIN ARCHITECT
50 BROMFIELD STREET BOSTON



LONGITUDINAL SECTION

SCALE 1/8"-1'-0"

FIG. 10.—AQUARIUM, LONGITUDINAL SECTION.

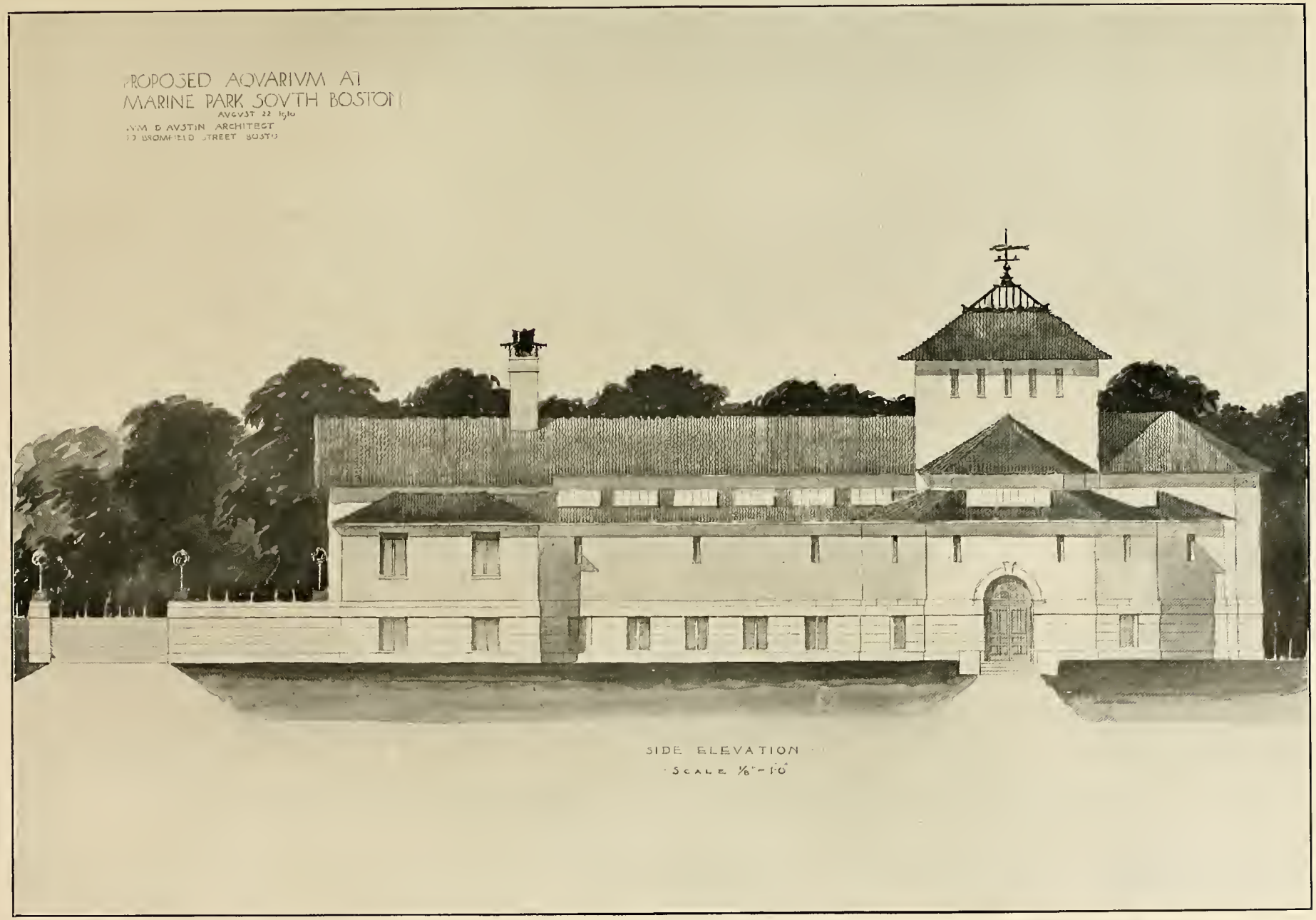


FIG. 11.—AQUARIUM, SIDE ELEVATION.

Your proposal for a bird house seems to me a very good one, and if carried into effect the building and its collection of birds would undoubtedly constitute a feature of great and permanent interest to visitors, as well as of convenience to the public. It is possible, however, that an expansion of your plan may lead you to choose to make this building a part of the important design that we have discussed for the development of the mall.

I recommend that in order to meet the demands that are almost certain to confront you, and that, too, in the near future, the following buildings be included in your general plan for the reception of the animals that sooner or later will be forced upon you for exhibition: An antelope house, for tropical antelopes, gazelles and zebras; a lion house; a reptile house; an elephant house, to include the elephant, rhinoceros, hippopotamus and giraffe; a monkey house; a small mammal house, for the many miscellaneous small quadrupeds that are inevitable, and that cannot be provided for elsewhere than in a heated building specially designed for them.

After prolonged conferences with Commissioner Peabody and your landscape architect, Mr. Shurtleff, it seems to me both possible and very desirable that the mall proposed by Mr. Olmsted should be developed as the great formal feature of the proposed Zoological Park, and the complement of the picturesque features already projected by you. Across the longitudinal axis of them all, and near its eastern terminus, I think you could well place the elephant house. Farther down, and near the center of the mall, could be placed, opposite each other, the lion house and the reptile house, and near the western end the monkey house and bird house could stand on opposite sides of the mall, balancing each other. The bandstand proposed by Mr. Olmsted would not be interfered with, and some of the space on the mall, between the buildings, might well be devoted to flower beds.

An antelope house is strongly recommended for a position on the crest of the fine knoll in the northwestern corner of the Zoological Park grounds, opposite the corrals for members of the deer family. It should have yards about 60 feet in depth, radiating from both its sides. The only drawback to this situation is the underlying rock, which will render it difficult to blast out holes on which to plant the fifteen or twenty shade trees that the animals would need in summer.

The small mammal house proposed should, in my opinion, be located

somewhere on the hill of rocks in the northwestern section of the grounds. There will be immediate necessity for a heated building of some kind in that region as an accessible retreat for visitors entering the park at the northwestern entrance in weather that is either rainy or extremely cold. I am convinced that a site suitable for a building without external yards can be found somewhere in the area indicated.

Conclusion.— It is my opinion that a zoological park developed on the scale indicated above would by no means be unduly large or costly for the City of Boston either to develop or to maintain. While it would not be the largest institution of its kind, it would be so large, so perfect for its size and so beautiful that it would be highly satisfactory to the people of Boston, and I believe that it would be most willingly maintained by them. In my opinion, a small establishment of hardy animals only would be very inadequate to the needs of a modern city of the fifth rank, and would not be popular. On the other hand, judging by results in other American cities, the expanded plan that we have already discussed at length would soon become very popular.

Respectfully submitted,

William T. Hornaday.

Boston, October 1, 1910.

Robert S. Peabody, Esq.,

Chairman of Department of Parks of the City of Boston:

Dear Sir,— In compliance with your request, I beg to submit herewith a description of the suggested design for the proposed Aquarium to be built in the Marine Park at South Boston. The general scheme is based upon that of the aquarium at Detroit, which appears to embody the latest ideas for a building for this purpose. But in size and design of both the interior and exterior the suggested plans differ materially from the Detroit prototype.

The Boston Aquarium, for instance, as drawn, would be, for the present, about half the size of the other, but as funds become available the building can easily be enlarged and, in fact, it has been designed with that object in view. The exterior shows cement plaster applied to hollow terra cotta blocks, which would constitute the walls of the building. The roofs are assumed to be of

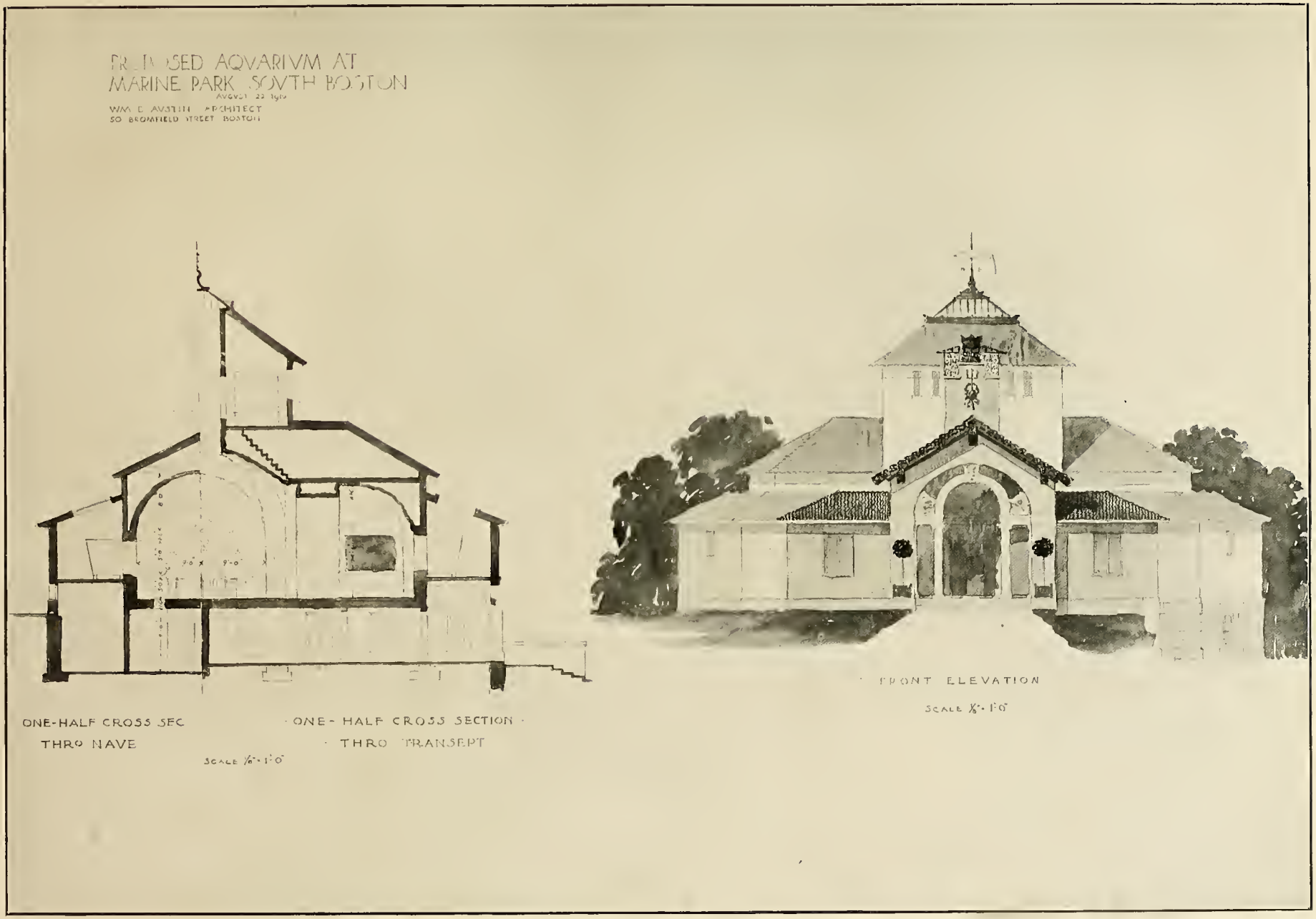


FIG. 12.—AQUARIUM, FRONT ELEVATION

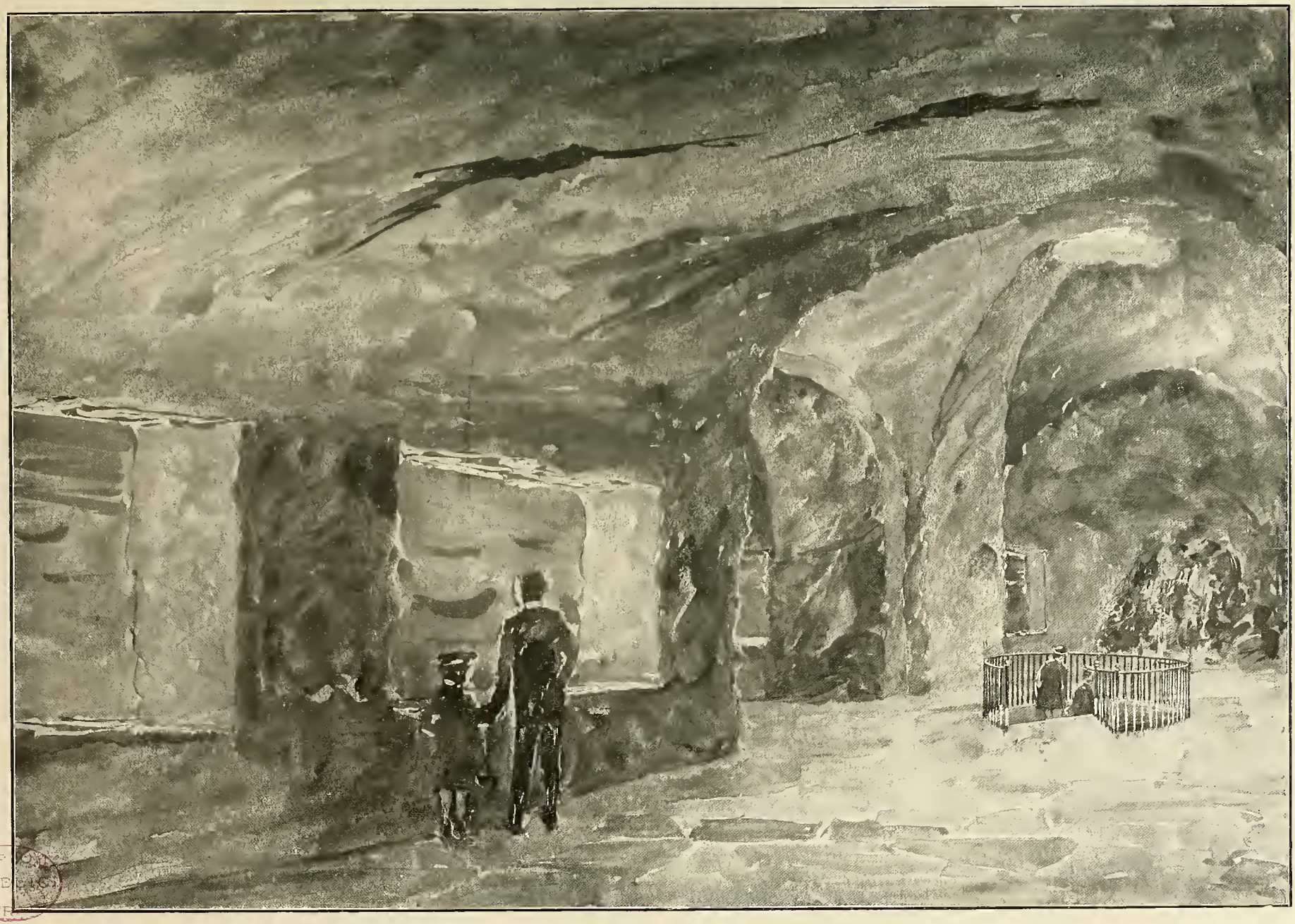


FIG. 13.—INTERIOR VIEW OF PROPOSED AQUARIUM AT MARINE PARK, SOUTH BOSTON.

wood construction covered with red tiles. Some elaborateness in material and workmanship is suggested in the design for the front entrance, where the columns and arch, I hope, may be of white marble with carved decorations, as suggested, of mermaids, sirens, dolphins in the keystone, and other aquatic motives. But this is the only unnecessary expense introduced into the exterior design. In about every other respect it has been studied to the last degree of economy consistent with suitableness and the dignity of its purpose and the auspices under which it is to be built.

The proposed location, as indicated on the block plan, is on the brow of an existing embankment or slope of ground, so that the basement on the easterly long side will be entirely above grade. The building is shown parallel with Farragut avenue, with the westerly long side about one hundred feet back from the sidewalk. The entrance front on the south side faces the principal approach to the park from Farragut avenue, and a wide walk is suggested connecting this approach with the south front. An exterior flight of stone steps is shown leading down from this walk to the lower level on the east side, whence paths will diverge to the two existing ponds which are proposed to be used as auxiliaries to the exhibits within the aquarium building.

The principal feature of the interior is, naturally, the exhibition hall on the main floor, where provision is made for tanks, each with plate glass fronts which, with the water behind the glass, will be entirely framed in by the walls of the hall.

The illumination for the public hall will principally be had, as is the custom in aquariums, through the water in the tanks, which will have skylights directly above them in the roofs over the working space which extends all around the building on the outside of and hidden from the public hall.

Because of the peculiar method of lighting above described, and the purpose of the building to exhibit fishes as nearly as possible as they would appear in their natural habitat, it seemed appropriate to design the interior of the exhibition hall to simulate, as far as practicable, caverns or grottoes under the sea. This effect has been attempted by the proposed use of real and rough stone in the walls and imitation stone for the arched ceilings, combined with the skill of a clever scene painter who will blend the true and the false into a harmonious whole, and, it is believed, produce a result which will create something of the impression striven for and, as suggested in the interior view, presented.

At the end of the hall, in what might be called the apse, a waterfall is suggested with a pool beneath.

The balance of the main floor is devoted to the entrance hall, superintendent's office, retiring room for women, check room and toilet rooms. These are all arranged near the main entrance. In the basement, on the high side, there is a second entrance for the public, under the east transept, and two large exhibition tanks are shown, forming two sides of the public lobby or vestibules. A wide and easy circular staircase ascends from this lobby to the main exhibition hall at a point directly under the domed ceiling.

The rest of the basement is taken up with laboratories for the superintendent's staff, receiving, feed, storage, boiler and coal rooms, toilet rooms for the workmen, and the space required for filters, pumps and other machinery.

There is a second story, directly over the crossing in the plan, which will be used entirely for the installation of the large supply tanks, from which tanks fresh and salt water is taken by gravity to the various exhibition tanks. This second story is reached by stairs from the working space in the main floor. It appears that the following equipment, stated in a general way, will be required:

1. A storage tank or cistern of, perhaps, 15,000 gallons capacity for salt water. This underground cistern may be built outside of the building, but in close proximity to it.

2. A supply tank of, perhaps, 1,500 gallons capacity for fresh water, a similar tank for salt water, a third similar tank for warmed salt water and possibly a fourth tank for warmed fresh water. These four tanks to be located in the second story, as stated above.

3. Twenty exhibition tanks at the outset. The majority of these tanks will each be about 5 feet high by 6 feet long by an average width of 4 feet 6 inches, but several will be 14 to 16 feet in length.

4. Filter beds for the impure salt and warmed salt water which is drawn off regularly from the exhibition tanks; filters for the pure fresh water.

5. Interception tanks under the basement floor for the reception of filtered salt water, previous to its return by gravity to the storage cistern.

6. Pumps (in duplicate) for pumping to the supply tanks. These pumps to be run by motors.

7. Boilers (in duplicate) for heating only and not for power.

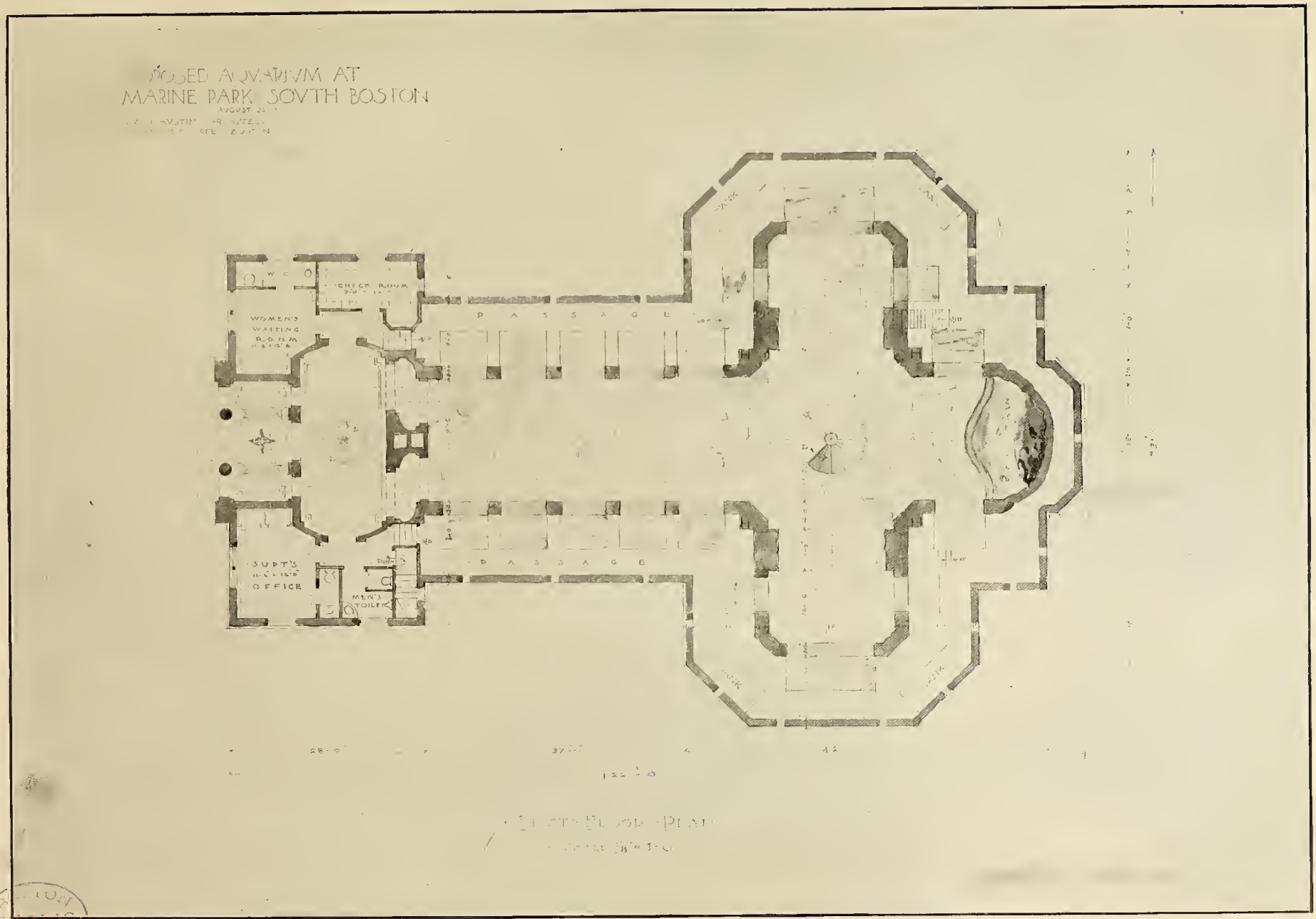
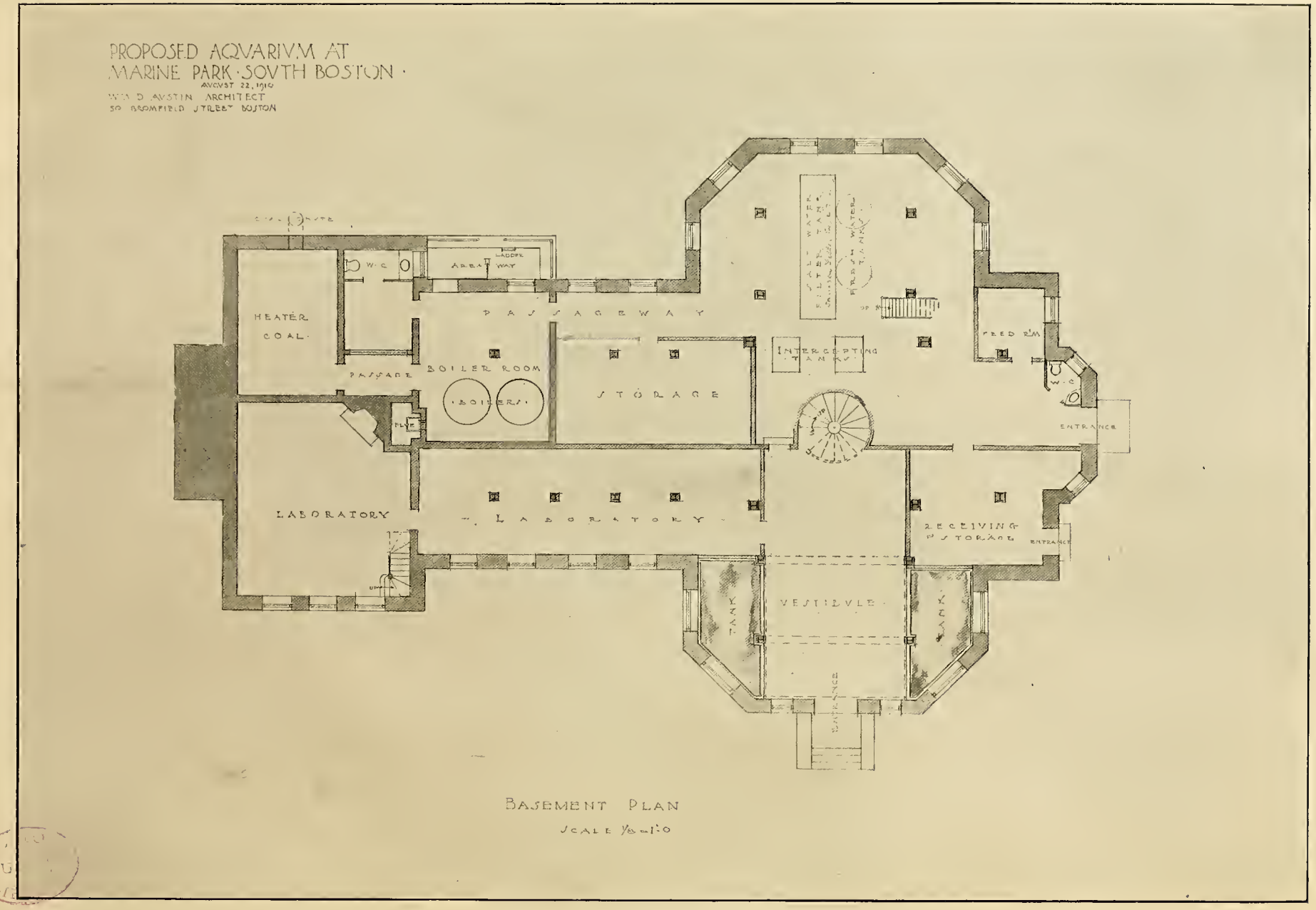


FIG. 14.—AQUARIUM, FIRST FLOOR PLAN.



BASEMENT PLAN

SCALE ¼"=1'-0

FIG. 15.—AQUARIUM, BASEMENT PLAN.

8. All the incidental supply piping, of heavy and expensive material, with the necessary valves, by-passes, etc.

Some of the above equipment would be adequate for twice the number of exhibition tanks at present contemplated, but, obviously, such equipment should be installed at the outset regardless of the future.

It might be stated here that the running feet of glass in the exhibition tanks is slightly in excess of one-half as much as in Detroit, but that the height of the tanks will exceed those in Detroit by 1 foot and the lengths by from 1 to 2 feet, the effort having been to produce as much of an effect of water (behind glass) as possible consistent with certain practical considerations.

In approximating the cost of this proposed building, the experience in Detroit has been useful. Without going into items, I believe we should allow in general for all equipment, based on the cost in the Detroit Aquarium, $20,000, and for the building itself the sum of $55,000, or $75,000 in all. The Detroit Aquarium, with forty-four exhibition tanks, cost, complete, about $115,000 — six or seven years ago.

To-day in Boston it could not be duplicated at that price. If we had $125,000 a building equal in capacity to that in Detroit could probably be built. A building of about half the capacity, but arranged for future enlargement, will obviously cost rather more than one-half of $125,000, because many things must be provided for the smaller building which would be equally satisfactory in one of twice the size.

In conclusion, it should be said that the sketch plans have been inspected by an expert aquarist and pronounced practicable so far as they have been studied. The multitudinous engineering details which would develop in connection with the preparation of working drawings and specifications have not, of course, so far been more than briefly considered, but that a right place for everything can be found when the time comes is the comforting assurance with which I close this report.

Yours very truly,

William D. Austin.